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Recent Progress in X-ray Detector Development

David Kline and Steve Ross

APS X-ray Science Division, Argonne National Laboratory, Argonne, IL 60439

We report on progress in our x-ray detector work, which we do together with several small companies (Small Business Innovative Research process, etc.), universities, and other national laboratories. We have several on-going developments, including a timing and control system for 7-ID single-element avalanche photo diode (APD) detectors, APD array detectors for sub-nanosecond timing and fast counting, a 40 x 6 direct detect thick CCD that will readout at the APS P0 rate (10^6 frames/sec), a silicon strip detector for fuel spray applications, and others. We continue our work with application-specific integrated circuits working with several CAD packages and in collaboration with students at Georgia Tech and Northern Illinois University (NIU). One application-specific integrated circuit project just beginning here involves ultrafast electronics with goals of timing in the picosecond range. We continue to work in areas of device physics (typically working in university clean rooms for fabrication) for the benefit of both our development programs and the NIU university curriculum.